

Applicant: Mark A. Smith et al.

Serial No.: 09/839,385

Filed: April 20, 2001

Docket No.: 10001074-1

Title: INK CONTAINER CONFIGURED TO ESTABLISH RELIABLE FLUIDIC CONNECTION TO A RECEIVING STATION

REMARKS

This Amendment is responsive to the Final Office Action mailed May 23, 2002 in which claims 1-8 and 10-20 were rejected. With this Response, no claims have been canceled or amended. Claims 1-8 and 10-20 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 103

Claims 1-8 and 10-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the U.S. Patent 6,039,441 to Tomikawa et al. in view of the U.S. Patent 5,085,698 to Ma et al. Tomikawa et al. in figures 1a, 1b and 5b is said to disclose a replaceable ink container for providing ink to an inkjet printing system, and a method of forming a seal. The inkjet printing system is said to include a printhead 21 and a receiving station 27 for receiving the replaceable ink container. The receiving station is said to have a fluid inlet 24 and a sealing structure 22. The replaceable ink container is said to comprise a reservoir 2 having a fluid outlet 11 and a sealing surface 14 proximate thereto. A sealing material (ink) is said to be contained within the reservoir for wetting the sealing surface to seal defects between the sealing surface and the sealing structure. Specific reference was made to column 5, lines 59-60 of Tomikawa et al. However, Tomikawa et al. is said not to disclose a sealing material containing solid particles held in suspension. Nevertheless, Ma et al. is said to disclose an ink containing carbon black particles for the purpose of providing black pigment, and a dispersant for the purpose of dispersing the carbon black particles. Specific reference was made to column 8, lines 38-39, and column 9, lines 29-30 and 40-41 of Ma et al. Therefore, the position was taken that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Tomikawa et al. with ink containing carbon black particles and a dispersant as taught by Ma et al. for the purpose of providing black pigments and dispersing the pigmented particles.

Claim 1 is directed to a replaceable ink container for providing ink to an inkjet printing system having a receiving station for receiving the replaceable ink container. The receiving station having a fluid inlet and a sealing structure. The replaceable ink container comprising a reservoir defining a fluid outlet with a sealing surface proximate the fluid outlet,

and a sealing material contained within the reservoir for wetting the sealing surface. The sealing material including solid particles held in a suspension, such that solidification of the solid particles acts to seal defects between the sealing surface and the sealing structure.

Using a sealing material that contains solid particles that come out of a suspension and solidify creates an improved seal between a sealing surface of the replaceable ink container and a sealing structure of the receiving station. This improved seal seals defects at the sealing surface and thereby prevents the loss of volatiles from ink within the ink container and minimizes the transfer of air into the ink delivery system resulting in improved printing system reliability and an improvement in the quality of printed images. A replaceable ink container having a seal of this type is simply not taught, disclosed, suggested or made obvious by the combination of Tomikawa et al. and Ma et al.

Tomikawa et al. in figures 1A, 1B, 2A and 2B is directed to a replaceable ink tank 1 insertable into a holding member 27 of a printing system. The holding member includes a recording head 21 and an elastic jointing member 22. The ink tank 1 includes an ink chamber 2 having a joint port 12 which is connectable to the elastic jointing member 22 to deliver ink from the ink chamber 2 to the recording head 21. The elastic jointing member 22 includes an umbrella shaped portion that engages a depressed part 14 of the ink tank to form a hermetic seal therebetween.

Ma et al. is directed inks for inkjet printers. In particular, Ma et al. is directed to an ink comprising an aqueous carrier medium and particles of pigment stabilized by a pigment dispersant that is an acrylic block polymer.

It is clear from a complete review of Tomikawa et al. and Ma et al., that the combination of Tomikawa et al. and Ma et al. does not disclose, suggest or make obvious what is claimed in independent claim 1. In particular, the combination of Tomikawa et al. and Ma et al. does not disclose a replaceable ink container comprising a reservoir defining a fluid outlet with a sealing surface proximate the fluid outlet, and a sealing material contained within the reservoir for wetting the sealing surface, with the sealing material including solid particles held in a suspension, such that solidification of the solid particles acts to seal defects between a sealing surface of the ink container and a sealing structure of a receiving station. In Tomikawa et al. there is no support whatsoever for a sealing material within an ink container wetting the area between a sealing surface of the ink

container and a sealing structure of a receiving station. Column 5, lines 59-60 of Tomikawa et al. referred to by the Examiner merely states that “when the ink tank 1 is detached from the recording head 21, a small amount of ink sticks to the depressed part 14, and no ink drips from the ink tank 1”. This language clearly does not suggest or make obvious the wetting of the area between a sealing surface of the ink container and a sealing structure of a receiving station, as set forth in independent claim 1, since ink can adhere to portions of the depressed part 14 not contacted by the elastic jointing member 22. Ma et al. does not remedy the deficiencies of the primary reference to Tomikawa et al. since Ma et al. is merely directed to an ink formulas comprising an aqueous carrier medium and particles of pigment stabilized by a pigment dispersant that is an acrylic block polymer. Hence, like Tomikawa et al., there is no support whatsoever in Ma et al. for a sealing material within an ink container wetting the area between a sealing surface of the ink container and a sealing structure of a receiving station.

Moreover, contrary to the Examiner’s remarks, there is no suggestion in the combination of Tomikawa et al. and Ma et al. for the **sealing material including solid particles held in a suspension, such that solidification of the solid particles acts to seal defects between a sealing surface of the ink container and a sealing structure of a receiving station**, as set forth in independent claim 1. Quite simply, Tomikawa et al. never discusses the composition of the ink in the ink tank 1 as such the ink of Tomikawa et al. could be a dye based ink, and Ma et al. never discusses that the pigmented particles in the ink can solidify to act as a seal.

Using a sealing material that contains solid particles that come out of a suspension and solidify creates an improved seal between a sealing surface of the replaceable ink container and a sealing structure of the receiving station. This improved seal seals defects at the sealing surface and thereby prevents the loss of volatiles from ink within the ink container and minimizes the transfer of air into the ink delivery system resulting in improved printing system reliability and an improvement in the quality of printed images.

For the reasons set forth above, Applicants believe that the combination of Tomikawa et al. and Ma et al. does not disclose, teach, suggest or make obvious, either implicitly or explicitly, what is claimed by Applicants in independent claim 1. Hence, Applicants believe

Response Under 37 C.F.R. § 1.116

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that the rejection of independent claim 1 under 35 U.S.C. § 103(a) has been overcome and should be withdrawn. Such action is respectfully requested.

Independent claims 7, 10 and 16 include language similar to that referred to above in connection with independent claim 1. As such, the remarks above directed to independent claim 1 are equally applicable to independent claims 7, 10 and 16. Therefore, for the reasons set forth above, Applicants believe that the combination of Tomikawa et al. and Ma et al. does not disclose, teach, suggest or make obvious, either implicitly or explicitly, what is claimed by Applicants in independent claims 7, 10 and 16. Hence, Applicants believe that the rejection of independent claims 7, 10 and 16 under 35 U.S.C. § 103(a) has been overcome and should be withdrawn. Such action is respectfully requested.

Dependent claims 2-6, 8, 11-15 and 17-20 are directly or indirectly dependent upon amended independent claims 1, 7, 10 and 16. As discussed above, it is believed that amended independent claims 1, 7, 10 and 16 are now in a condition for allowance. Therefore, consideration and allowance of dependent claims 2-6, 8, 11-15 and 17-20 is also requested.

CONCLUSION

In conclusion, it is believed that all claims 1-8 and 10-20 of this application are now in condition for allowance. A notice to that effect is respectfully requested.

Response Under 37 C.F.R. 116

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Respectfully submitted,

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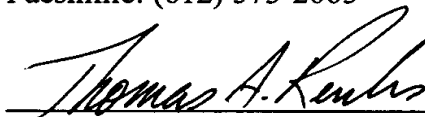
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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Box AF, Commissioner for Patents, Washington, D.C., 20231 on this 23rd day of July, 2002.

By 
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